- construction plans including operation depths of barges, barge routes, and strategies to avoid seagrass impacts.
- sediment/turbidity control in association with wetland creation and earthwork.
- bathymetry mapping and seagrass coverage, species and composition present at the site, especially Johnson's seagrass (*Halophila johnsonii*).
- characterizations and species composition of upland enhancement areas.
- monitoring plans and assurances for long term maintenance of the site(s).

We are available to meet with project representatives to continue coordination toward the completion of this ecosystem restoration project. If you have any questions, please contact Trish Adams at (561) 562-3909, extension 232, regarding the findings and recommendations contained in this report.

Sincerely yours,

Kalani D. Caine

for James J. Slack
Project Leader
South Florida Ecological Services Office

cc:
NMFS, Miami, FL
FWC, Vero Beach, FL
FDEP, Tallahassee, FL

STANDARD MANATEE CONSTRUCTION CONDITIONS
MARCH 27, 1995

a. The lessee/grantee shall instruct all personnel associated with the project of the potential presence of manatees and the need to avoid collisions with manatees. All construction personnel are responsible for observing water-related activities for the presence of manatee(s).

b. The lessee/grantee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act of 1972, The Endangered Species Act of 1973 and the Florida Manatee Sanctuary Act.

c. Siltation barriers shall be made of material in which manatees cannot become entangled, are properly secured and are regularly monitored to avoid manatee entrapment. Barriers must not block manatee entry to or exits from essential habitat.

d. All vessels associated with the construction project shall operate at "no wake/idle" speeds at all times while in the construction area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.

e. If manatee(s) are seen within 100 yards of the active daily construction/dredging operation or vessel movement, all appropriate precautions shall be implemented to ensure protection of the manatee. These precautions shall include the operation of all moving equipment no closer than 50 feet of a manatee operation of any equipment closer than 50 feet to a manatee shall necessitate immediate shutdown of that equipment. Activities will not resume until the manatee(s) has departed the project area of its own volition.

f. A collision with and/or injury to a manatee shall be reported immediately to the Florida Marine Patrol at 1-800-DIAL-FMP (1-800-342-5367). **Collision and/or injury should also be reported to the U.S. Fish and Wildlife Service in Jacksonville (1-904-232-2580) for north Florida or Vero Beach (1-407-562-3909) in south Florida.**

g. Temporary signs concerning manatees shall be posted prior to and during all construction/dredging activities. All signs are to be removed by the lessee/grantee upon completion of the project. A sign measuring at least 3 feet by 4 feet which reads *Caution: Manatee Area* will be posted in a location prominently visible to water related construction crews. A second sign should be posted if vessels are associated with the construction, and should be placed visible to the vessel operator. The second sign should be at least 81/2 inches by 11 inches which reads:

> *Caution: Manatee Habitat. Idle speed is required if operating a vessel in the construction area. All equipment must be shutdown if a manatee comes within 50 feet of the operation. A collision with and/or injury to a manatee shall be reported immediately to the Florida Marine Patrol at 1-800-DIAL-FMP (1-800-343-5367) and the U.S. Fish and ~~Wildlife Service at (1-904-232-2580) for north Florida or~~ (1-407-562-3909) for south Florida.*

SUPPLIERS

DNR APPROVED MANATEE AWARENESS AND INFORMATION DISPLAY SIGNS

"Caution Manatee Are" and "Manatee Habitat/Construction Area" signs which meet Florida Department of Natural Resources (DNR) requirements are available through the sources listed below. Additional suppliers for construction of these signs may be available through local companies. However, any signs utilized must meet DNR requirements and must contain the exact information as outlined and illustrated on the attached Requirement Condition sheet.

"Caution Manatee Area" signs

Advanced Barricades
P.O. Box 1745
Jupiter, FL 33458-1745
407-746-5123

Municipal Supply & Sign Co.
P.O. Box 17
Naples, FL 33939-1765
813-262-4639

Information display signs which have been approved by the DNR and are in compliance with the lease requirements, are available through the two following sources:

"Information Display" signs (consist of two signs)

New City Sign
2245 Central Avenue
St. Petersburg, FL 33713
813-323-1897

Municipal Supply & Sign Co.
P.O. Box 17
Naples, FL 33939-1765
813-262-4639

Permit/lease holders, marinas, docking and launching facilities should contact these sign companies directly and arrange for shipment and billing on an individual basis.

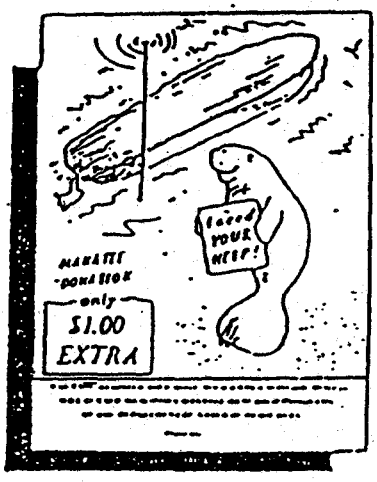
MANATEE BASICS FOR BOATERS

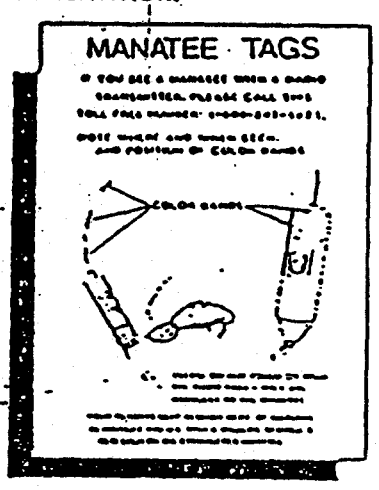
TO REPORT
CALL: 1-800-342-1821 RESOURCE ALERT

FOR: manatee harassment, dead or injured manatees, tagged manatees, regulatory zone violations

SAVE A LIFE

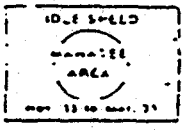
ACCIDENTAL STRIKES OF MANATEES SHOULD BE REPORTED IMMEDIATELY TO INITIATE PROMPT RESCUE AND REHABILITATION.



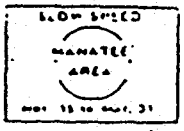


MANATEE PROTECTION ZONES

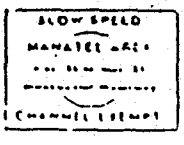
Accidental strikes by boats account for 40% of manatee deaths where the cause of death is verified by necropsy. To minimize this hazard, boaters should stay in deep-water navigation c[illegible] and reduce speed when operating in shallow wa[illegible] ss out side navigation channels. To alert the boater and protect the manatee, the law provides a number of cautionary and regulatory speed zones. These signs are illustrated and defined below.



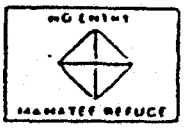
a zone in which boats are not permitted to go any faster than necessary to be steered;



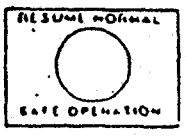
a no-wake or minimum-wake zone where boats must not be on a plane and must be level in the water. In some areas the channel is exempt.



a zone frequently inhabited by manatees, requiring caution by boaters to avoid disturbing or injuring the animals.



a zone that prohibits boating, swimming and diving for the protection of manatees.



an unregulated zone marking the end of a manatee protection zone in which boats can be operated at safe speeds; boaters should remain alert for signs of manatee activity and adjust speed accordingly.

FOR FURTHER INFORMATION WRITE OR CALL:

Florida Department of Natural Resources
Division of Marine Resources
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000
(904)922-4330

Save the Manatee Club
500 N. Maitland Avenue
Maitland, Florida 32571
(407)539-0990

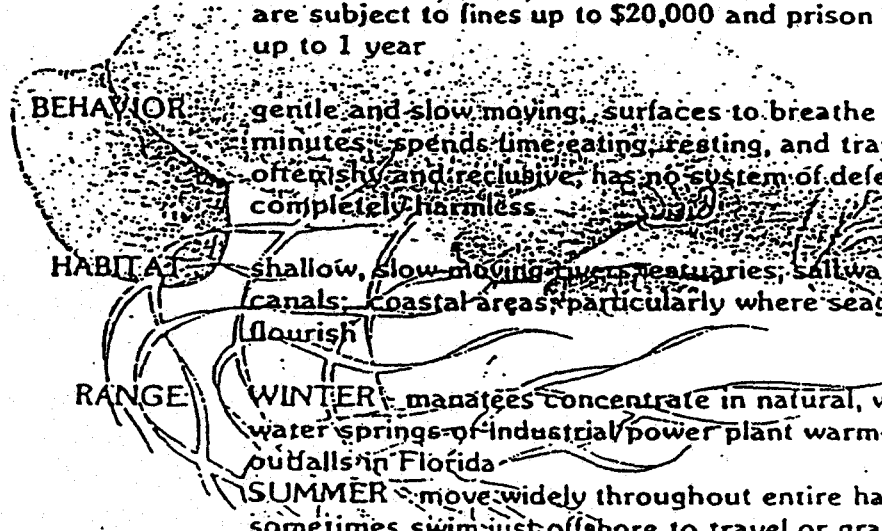
WEST INDIAN MANATEE FACT SHEET

POPULATION: highly endangered

REPRODUCTION: mature at approximately 5 years of age; gestation approximately 13 months; one calf born every 2-3 years; cows nurse calves up to 2 years

PROBLEMS: boat/barge collisions; habitat loss; crushing/drowning in flood gates and canal locks; cold-related illnesses; ingestion of fish hooks and monofilament line; entanglement in crab trap lines and fishing trawl nets; pollution

PROTECTION: violators of state and federal laws protecting manatees are subject to fines up to $20,000 and prison sentences up to 1 year



BEHAVIOR: gentle and slow moving; surfaces to breathe every 3-4 minutes; spends time eating, resting, and traveling; often shy and reclusive; has no system of defense and is completely harmless

HABITAT: shallow, slow-moving rivers, estuaries, saltwater bays; canals; coastal areas, particularly where seagrass beds flourish

RANGE: WINTER - manatees concentrate in natural, warm-water springs or industrial power plant warm-water outfalls in Florida

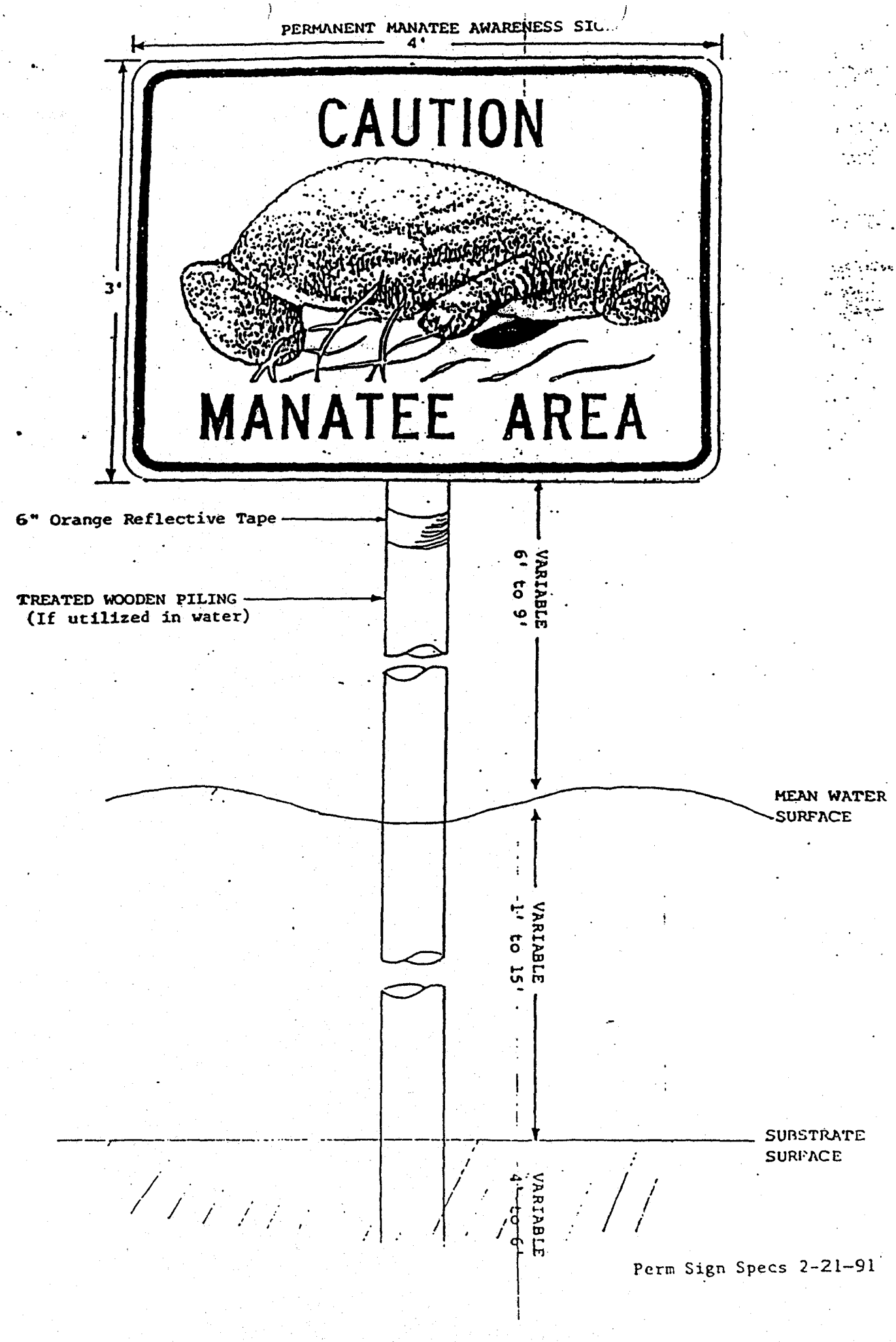
SUMMER - move widely throughout entire habitat; sometimes swim just offshore to travel or graze; sometimes travel as far as the lower Carolinas on the East Coast and to Louisiana on the Gulf Coast

FOOD: submerged (e.g. Hydrilla), emergent (e.g. Spartina), and floating (e.g. Water-hyacinths) aquatic plants

FOR FURTHER INFORMATION WRITE OR CALL:

Florida Department of Natural Resources
Division of Marine Resources
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000
(904)922-4330

Save the Manatee Club
500 N. Maitland Avenue
Maitland, Florida 32571
(407)539-0990



Perm Sign Specs 2-21-91

SPECIAL CONDITIONS

1. MINIMUM BUILDING FLOOR ELEVATION: 9 FEET NGVD.

2. THE PERMITTEE SHALL BE RESPONSIBLE FOR THE CORRECTION OF ANY EROSION, SHOALING OR WATER QUALITY PROBLEMS THAT RESULT FROM THE CONSTRUCTION OR OPERATION OF THE SURFACE WATER MANAGEMENT SYSTEM.

3. MEASURES SHALL BE TAKEN DURING CONSTRUCTION TO INSURE THAT SEDIMENTATION AND/OR TURBIDITY PROBLEMS ARE NOT CREATED IN THE RECEIVING WATER.

4. THE DISTRICT RESERVES THE RIGHT TO REQUIRE THAT ADDITIONAL WATER QUALITY TREATMENT METHODS BE INCORPORATED INTO THE DRAINAGE SYSTEM IF SUCH MEASURES ARE SHOWN TO BE NECESSARY.

5. FACILITIES OTHER THAN THOSE STATED HEREIN SHALL NOT BE CONSTRUCTED WITHOUT AN APPROVED MODIFICATION OF THIS PERMIT.

6. OPERATION OF THE SURFACE WATER MANAGEMENT SYSTEM SHALL BE THE RESPONSIBILITY OF THE PERMITTEE. PRIOR TO TRANSFER OF TITLE FOR ANY PORTION OF THE PROJECT TO A THIRD PARTY, MODIFICATION OF THE PERMIT WILL BE REQUIRED.

7. SILT SCREENS, HAY BALES OR OTHER SUCH SEDIMENT CONTROL MEASURES SHALL BE UTILIZED DURING CONSTRUCTION. THE SELECTED SEDIMENT CONTROL MEASURES SHALL BE INSTALLED LANDWARD OF THE UPLAND BUFFER ZONES AROUND ALL PROTECTED WETLANDS. ALL AREAS SHALL BE STABILIZED AND VEGETATED IMMEDIATELY AFTER CONSTRUCTION TO PREVENT EROSION INTO THE WETLANDS AND UPLAND BUFFER ZONES.

8. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE PERIMETER OF THE PROTECTED WETLANDS AND BUFFER ZONES SHALL BE FENCED TO PREVENT ENCROACHMENT INTO THE WETLANDS. THE PERMITTEE SHALL NOTIFY THE SFWMD'S ENVIRONMENTAL COMPLIANCE STAFF IN WRITING UPON COMPLETION OF FENCING AND SCHEDULE AN INSPECTION OF THIS WORK. THE PERMITTEE SHALL MODIFY THE FENCING IF SFWMD STAFF DETERMINES IT IS INSUFFICIENT OR IS NOT IN CONFORMANCE WITH THE INTENT OF THIS PERMIT. FENCING SHALL REMAIN IN PLACE UNTIL ALL ADJACENT CONSTRUCTION ACTIVITIES ARE COMPLETE.

9. THE SFWMD RESERVES THE RIGHT TO REQUIRE REMEDIAL MEASURES TO BE TAKEN BY THE PERMITTEE IF WETLAND AND/OR UPLAND MONITORING OR OTHER INFORMATION DEMONSTRATES THAT ADVERSE IMPACTS TO PROTECTED, CONSERVED, INCORPORATED OR MITIGATED WETLANDS OR UPLANDS HAVE OCCURRED DUE TO PROJECT RELATED ACTIVITIES.

10. ANY FUTURE CHANGES IN LAND USE OR TREATMENT OF WETLANDS AND/OR UPLAND BUFFER/COMPENSATION AREAS MAY REQUIRE A SURFACE WATER MANAGEMENT PERMIT MODIFICATION AND ADDITIONAL ENVIRONMENTAL REVIEW BY DISTRICT STAFF. PRIOR TO THE PERMITTEE INSTITUTING ANY FUTURE CHANGES NOT AUTHORIZED BY THIS

PERMIT, THE PERMITTEE SHALL NOTIFY THE SFWMD OF SUCH INTENTIONS FOR A DETERMINATION OF ANY NECESSARY PERMIT MODIFICATIONS.

11. THE PERMITTEE SHALL BE RESPONSIBLE FOR THE SUCCESSFUL COMPLETION OF THE MITIGATION WORK, INCLUDING THE MONITORING AND MAINTENANCE OF THE MITIGATION AREAS FOR THE DURATION OF THE PLAN. THE MITIGATION AREA(S) SHALL NOT BE TURNED OVER TO THE OPERATION ENTITY UNTIL THE MITIGATION WORK IS ACCOMPLISHED AS PERMITTED AND SFWMD STAFF HAS CONCURRED.

12. ACTIVITIES ASSOCIATED WITH IMPLEMENTATION OF THE WETLAND MITIGATION, MONITORING AND MAINTENANCE SHALL BE IN ACCORDANCE WITH THE FOLLOWING WORK SCHEDULE. ANY DEVIATION FROM THESE TIME FRAMES SHALL REQUIRE FORMAL SFWMD APPROVAL. SUCH REQUESTS MUST BE MADE IN WRITING AND SHALL INCLUDE (1) REASON FOR THE MODIFICATION; (2) PROPOSED START/FINISH DATES; AND (3) PROGRESS REPORT ON THE STATUS OF THE EXISTING MITIGATION EFFORTS.

COMPLETION DATE	ACTIVITY
APRIL 1, 1997	TIME ZERO SEAGRASS SURVEY
MAY 1, 1997	TIME ZERO MONITORING REPORT
SEPTEMBER 1, 1998	FIRST MONITORING REPORT
SEPTEMBER 1, 1999	SECOND MONITORING REPORT
SEPTEMBER 1, 2000	THIRD MONITORING REPORT
SEPTEMBER 1, 2001	FOURTH MONITORING REPORT
SEPTEMBER 1, 2002	FIFTH MONITORING REPORT

13. ENDANGERED SPECIES, THREATENED SPECIES, OR SPECIES OF SPECIAL CONCERN HAVE BEEN OBSERVED ONSITE AND/OR THE PROJECT CONTAINS SUITABLE HABITAT FOR THESE SPECIES. IT SHALL BE THE PERMITTEE'S RESPONSIBILITY TO COORDINATE WITH THE FLORIDA GAME AND FRESH WATER FISH COMMISSION AND/OR U.S. FISH AND WILDLIFE SERVICE FOR APPROPRIATE GUIDANCE, RECOMMENDATIONS, AND/OR NECESSARY PERMITS TO AVOID IMPACTS TO LISTED SPECIES.

14. THE PERMITTEE SHALL COMPLY WITH THE FOLLOWING MANATEE PROTECTION CONSTRUCTION CONDITIONS:

A) THE PERMITTEE SHALL INSTRUCT ALL PERSONNEL ASSOCIATED WITH THE PROJECT OF THE POTENTIAL PRESENCE OF MANATEES AND THE NEED TO AVOID COLLISION WITH MANATEES. ALL CONSTRUCTION PERSONNEL ARE RESPONSIBLE FOR OBSERVING WATER-RELATED ACTIVITIES FOR THE PRESENCE OF MANATEE(S).

B) THE PERMITTEE SHALL ADVISE ALL CONSTRUCTION PERSONNEL THAT THERE ARE CIVIL AND CRIMINAL PENALTIES FOR HARMING, HARASSING, OR KILLING MANATEES WHICH ARE PROTECTED UNDER THE MARINE MAMMAL PROTECTION ACT OF 1972, THE ENDANGERED SPECIES ACT OF 1973, AND THE FLORIDA MANATEE SANCTUARY ACT.

C) SILTATION BARRIERS SHALL BE MADE OF MATERIAL IN WHICH MANATEES CANNOT BECOME ENTANGLED, ARE PROPERLY SECURED, AND ARE REGULARLY MONITORED TO AVOID MANATEE ENTRAPMENT. BARRIERS MUST NOT BLOCK MANATEE ENTRY TO OR EXIT FROM ESSENTIAL HABITAT.

D) ALL VESSELS ASSOCIATED WITH THE CONSTRUCTION PROJECT SHALL OPERATE AT "NO WAKE/IDLE" SPEEDS AT ALL TIMES WHILE IN THE CONSTRUCTION AREA AND WHILE IN WATER WHERE THE DRAFT OF THE VESSEL PROVIDES LESS THAN FOUR-FEET CLEARANCE FROM THE BOTTOM. ALL VESSELS WILL FOLLOW ROUTES OF DEEP WATER WHENEVER POSSIBLE.

E) IF MANATEES OR SEA TURTLES ARE SEEN WITHIN 100 YARDS OF THE ACTIVE DAILY CONSTRUCTION/DREDGING OPERATION OR VESSEL MOVEMENT, ALL APPROPRIATE PRECAUTIONS SHALL BE IMPLEMENTED TO ENSURE PROTECTION OF THE MANATEE OR SEA TURTLE. THESE PRECAUTIONS SHALL INCLUDE THE OPERATION OF ALL MOVING EQUIPMENT NO CLOSER THAN 50 FEET OF A MANATEE OR SEA TURTLE. OPERATION OF ANY EQUIPMENT CLOSER THAN 50 FEET TO A MANATEE OR SEA TURTLE SHALL NECESSITATE IMMEDIATE SHUTDOWN OF THAT EQUIPMENT. ACTIVITIES WILL NOT RESUME UNTIL THE MANATEE OR SEA TURTLE HAS DEPARTED THE PROJECT AREA OF ITS OWN VOLITION.

F) ANY COLLISION WITH AND/OR INJURY TO A MANATEE SHALL BE REPORTED IMMEDIATELY TO THE FLORIDA MARINE PATROL AT 1-800-DIAL-FMP (1-800-342 5367). COLLISION AND/OR INJURY SHOULD ALSO BE REPORTED TO THE U.S. FISH AND WILDLIFE SERVICE IN VERO BEACH (1-407-562-3909).

G) TEMPORARY SIGNS CONCERNING MANATEES SHALL BE POSTED PRIOR TO AND DURING ALL CONSTRUCTION/DREDGING ACTIVITIES. ALL SIGNS ARE TO BE REMOVED BY THE PERMITTEE UPON COMPLETION OF THE PROJECT. A SIGN MEASURING AT LEAST THREE (3) FEET BY FOUR (4) FEET WHICH READS "CAUTION: MANATEE AREA" WILL BE POSTED IN A LOCATION PROMINENTLY VISIBLE TO WATER RELATED CONSTRUCTION CREWS. A SECOND SIGN SHOULD BE POSTED IF VESSELS ARE ASSOCIATED WITH THE CONSTRUCTION, AND SHOULD BE PLACED VISIBLE TO THE VESSEL OPERATOR. THE SECOND SIGN SHOULD BE AT LEAST 8 1/2 INCHES BY 11 INCHES AND SHOULD READ "CAUTION: MANATEE HABITAT". IDLE SPEED IS REQUIRED IF OPERATING A VESSEL IN THE CONSTRUCTION AREA. ALL EQUIPMENT MUST BE SHUTDOWN IF A MANATEE COMES WITHIN 50 FEET OF OPERATION. ANY COLLISION WITH AND/OR INJURY TO A MANATEE SHALL BE REPORTED IMMEDIATELY TO THE FLORIDA MARINE PATROL AT 1-800-DIAL-FMP (1-800-342-5367). THE U.S. FISH AND WILDLIFE SERVICE SHOULD ALSO BE CONTACTED IN VERO BEACH (1-407-562-3909)."

15. UPON SUBMITTAL OF AN APPLICATION FOR CONSTRUCTION APPROVAL FOR FUTURE PHASES, THE PERMITTEE SHALL SUBMIT DRAFT COPIES OF PRELIMINARY PLAT(S), DEED RESTRICTIONS, CONSERVATION EASEMENTS OR OTHER DOCUMENTATION WHICH DEDICATES THE WETLAND PRESERVATION/MITIGATION AREAS, UPLAND BUFFER ZONES, AND/OR UPLAND PRESERVATION AREAS AS CONSERVATION AND COMMON AREAS. RESTRICTIONS FOR THE USE OF THE CONSERVATION/COMMON AREAS SHALL STIPULATE:

THE WETLAND PRESERVATION/MITIGATION AREAS, UPLAND BUFFER ZONES, AND/OR UPLAND PRESERVATION AREAS ARE HEREBY DEDICATED AS CONSERVATION AND COMMON AREAS. THE CONSERVATION/COMMON AREAS SHALL BE THE PERPETUAL RESPONSIBILTY OF PERMITTEE AND MAY IN NO WAY BE ALTERED FROM THEIR NATURAL STATE AS DOCUMENTED IN THE PERMIT FILE, WITH THE EXCEPTION OF PERMITTED RESTORATION ACTIVITIES. ACTIVITIES PROHIBITED WITHIN THE CONSERVATION AREAS INCLUDE,

BUT ARE NOT LIMITED TO: CONSTRUCTION OR PLACING SOIL OR OTHER SUBSTANCES SUCH AS TRASH; REMOVAL OR DESTRUCTION OF TREES, SHRUBS, OR OTHER VEGETATION - WITH THE EXCEPTION OF EXOTIC/NUISANCE VEGETATION REMOVAL; EXCAVATION, DREDGING, OR REMOVAL OF SOIL MATERIAL; DIKING OR FENCING; AND ANY OTHER ACTIVITIES DETRIMENTAL TO DRAINAGE, FLOOD CONTROL, WATER CONSERVATION, EROSION CONTROL, OR FISH AND WILDLIFE HABITAT CONSERVATION OR PRESERVATION.

RECORDED COPIES OF PLATS, DEED RESTRICTIONS, CONSERVATION EASEMENTS OR OTHER APPROVED DOCUMENTATION SHALL BE SUBMITTED, CONCURRENT WITH ENGINEERING CERTIFICATION OF CONSTRUCTION COMPLETION.

16. IF DISTRICT STAFF DETERMINES FROM FIELD INSPECTION OR FROM ADDITIONAL INFORMATION PROVIDED BY THE APPLICANT THAT ADDITIONAL SEAGRASS OR MARINE ALGAE IMPACTS HAVE OCCURRED, THEN THE PERMITTEE SHALL PROVIDE A MITIGATION PLAN ACCEPTABLE TO THE DISTRICT WITHIN THIRTY (30) DAYS OF NOTIFICATION FROM THE DISTRICT.

17. IMMEDIATELY PRIOR TO CONSTRUCTION OF THE FISHING PIER AND BOAT DOCK, THE PERMITTEE SHALL FIELD LOCATE AND MARK THE EXACT LOCATION OF THE PIER AND DOCK. DISTRICT STAFF SHALL BE NOTIFIED TO VERIFY THE PROPOSED PIER AND DOCK FOOTPRINT TO AVOID AND MINIMIZE IMPACTS TO SEAGRASSES AND MARINE ALGAE.

18. WITHIN 30 DAYS OF COMPLETION OF CONSTRUCTION OF THE FISHING PIER AND BOAT DOCK, THE PERMITTEE SHALL SUBMIT A SEAGRASS SURVEY OF THE AREA IMMEDIATELY ADJACENT TO THE FISHING PIER AND BOAT DOCK (SIMILAR TO PRE-CONSTRUCTION SEAGRASS SURVEY-EXHIBIT 21).

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
9721 Executive Center Drive North
St. Petersburg, Florida 33702

February 2, 2001

Mr. James C. Duck
Chief, Planning Division
Planning Division, Environmental Branch
Department of the Army, Corps of Engineers
P.O. Box 4970
Jacksonville, Florida 32232-0019

Dear Mr. Duck:

The National Marine Fisheries Service (NMFS) has reviewed your staff's letter dated January 5, 2001, regarding the proposed Johns Island Environmental Restoration Project in Lake Worth Lagoon, Palm Beach County, Florida. The NMFS provided previous comments regarding the project by letter dated April 18, 2000, and provided Essential Fish Habitat (EFH) Conservation Recommendation in a letter dated November 9, 2000. Your letter requested NMFS' concurrence with the Corps of Engineers' (COE) determination that, contingent upon the results of a summer seagrass survey on the eastern side of John's Island, the proposed project will have no effect on EFH.

Based upon the information previously provided to us, we were unable to fully assess project impacts and we had requested additional information regarding the disposal of newly excavated material adjacent to the Lake Worth Municipal Golf Course. In addition, we requested information on the location of, and the potential impacts to, seagrasses adjacent to John's Island. In response to our request for additional information, you have indicated that the disposal of the material adjacent to the golf course will be restricted to placing it in previously dredged areas (i.e. "anoxic holes"), and with sufficient buffers and turbidity barriers so as to avoid impacts to the seagrass beds located along the littoral area near the golf course shoreline. After review of the information regarding the suitability of the material from John's Island, we are satisfied with the COE determination that the material is free from contamination and should be compatible as substrate for this area. Although we do not object to the disposal of the John's Island material over non-vegetated bottom, we continue to have some concerns regarding the resuspension of existing fine sediments/silt during the disposal operation within this area. The Palm Beach County Department of Environmental Resource Management (DERM), in a letter to the COE dated October 12, 2000, characterized the sediment as dark brown mud with an 83% silt/clay content. Adjacent grass beds could be impacted by the proposed disposal if resuspended sediments are not adequately contained by the turbidity barriers. However, the volume of material to be placed within the area is approximately 17,000 cubic yards, which is considerably less than the amount proposed for disposal from Peanut Island and the Palm Beach Harbor/Atlantic Intracoastal Waterway dredging projects. The NMFS suggests that before

these larger projects are underway, the COE should monitor the disposal of material from the John's Island project to determine if resuspension of sediments can be controlled.

In reference to our request for seagrass surveys of the area surrounding John's Island, your letter states that Palm Beach County DERM staff have not observed seagrasses on the western side of John's Island, where a temporary, 50-foot-long pier is proposed. According to your letter, access to the eastern side of John's Island would be necessary to dredge two channels on the island. However, COE staff have indicated that complete surveys have not been conducted for either side of the island. Accordingly, a seagrass survey is scheduled to be conducted for both sides of the island during the summer of 2001.

In regard to our EFH Conservation Recommendations, the recent information provided to the NMFS indicates that the placement of material adjacent to the golf course will not impact seagrasses by direct burial or by siltation from resuspended sediments. Therefore, provided these parameters are followed, the NMFS does not object to the disposal of material near Lake Worth Municipal Golf Course.

Based upon the information provided to the NMFS, you have adequately addressed our EFH Conservation Recommendations and have satisfied the requirements of the EFH provisions of the 1996 amendment to the Magnuson-Stevens Fishery Conservation and Management Act. However, should the seagrass survey scheduled for this summer indicate that impacts to submerged aquatic vegetation may occur, the COE should reinitiate EFH consultation for the project with NMFS. Potential impacts that could affect seagrasses may include, but are not limited to, bottom dredging, prop dredging and scour, shading from temporary dock and barges, and construction activities relating to the temporary dock. We request that copies of the summer seagrass survey, along with a vessel operations plan (showing ingress and egress routes), be forwarded to the NMFS for review.

We appreciate working with your staff during the coordination of this project. If you have any questions regarding these comments, please contact Mr. Michael Johnson in Miami at 305-595-8352.

Sincerely,

W. Mark Thompson for

Andreas Mager, Jr.
Assistant Regional Administrator
Habitat Conservation Division

cc:
EPA, WPB
DEP, WPB
FFWCC, TALL
FWS, VERO
F/SER4
F/SER43-JOHNSON
F/SER3

United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Florida Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960

January 17, 2001

Mr. James C. Duck
Chief, Planning Division
U.S. Army Corps of Engineers
P.0. Box 4970
Jacksonville, FL 32232-0019

Re: Section 1135 Johns Island Restoration
Palm Beach County

Dear Mr. Duck:

The Fish and Wildlife Service (Service) has reviewed the Army Corps of Engineers' (Corps) project plans to enhance a spoil island in Lake Worth Lagoon, Palm Beach County, Florida. This project is proposed pursuant to Section 1135 of the Water Resources Development Act of 1992. This final Fish and Wildlife Coordination Act report is submitted in accordance with Section 7 of the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) (ESA) and with the Fish and Wildlife Coordination Act of 1958, as amended (16 U.S.C. 661 *et seq.*) (FWCA).

PROJECT HISTORY

The Service's assistance was first requested by the Corps Planning office in a letter dated February 1, 2000, to review the information provided on the Johns Island Environmental Restoration Project. A March 15, 2000, letter of general notice followed to gather information to define issues and concerns relating to the restoration effort. The Corps was contacted by the Service to discuss the project and a tentative completion date of a draft FWCA report was set. A request to combine the Services' Section 7 consultation with the FWCA report followed in a letter dated April 10, 2000. The draft FWCA report was submitted on July 14, 2000. A Draft Environmental Assessment was produced by the Corps in September, 2000.

PROJECT DESCRIPTION

The purpose of the Johns Island Restoration project is to enhance habitat for fisheries and wildlife. This is to be achieved by creating and restoring wetland and upland habitat on Johns Island, a man-made spoil island located within north-central Lake Worth Lagoon in Riviera Beach, Section 11, Township 44 South, Range 43 East, Palm Beach County, Florida.

Johns Island, approximately 10 acres in size, was created by the placement of dredged material deposited during the construction and maintenance of the Lake Worth Inlet and Intracoastal Waterway (IWW) since the 1930's. The island has subsequently been colonized by invasive exotic vegetation. Occupying what was once submerged shallow water habitat, Johns Island is presently dominated by Australian pine (*Casuarina* spp.), Brazilian pepper (*Schinus terebinthifolius*), and seaside mahoe (*Thespesia populnea*).

The proposed Johns Island Restoration project involves removing exotic vegetation and a portion of dredged material deposits, then re-establishing native habitats. Project features include: enhancement of existing mangrove habitat, planting additional red mangroves, planting native tropical hardwood hammock, and excavation of two tidal channels to create additional wetland habitat.

Lake Worth Lagoon has lost an estimated 87% of mangrove wetland habitat between 1940 and 1975 as a result of shoreline development, particularly shoreline armoring and backfill. In an effort to regain some of this lost habitat, the Corps proposes the following alternatives:

Preferred Alternative A:

> The preferred plan proposes to enhance approximately 1.7 acres of existing mangroves, create 3.3 acres of additional mangrove habitat, create approximately 1.4 acres of tropical hardwood hammock, along with removing 5 acres of exotic vegetation. A tidal channel system, with two inlets, approximately one quarter mile in length, will be created by grading to wetland elevations through excavation of approximately 17,000 cubic yards of material. To stabilize the inlets, 500 tons of 1-3 foot diameter boulder riprap will be incorporated. The native planting will begin after exotic vegetation has been cleared, chipped and stockpiled for use as mulch; and the proposed excavation and detailed grading have been completed. Vegetation to be planted will include approximately 13,000 red mangrove (*Rhizophora mangle*) in the excavated inter-tidal areas, adjacent to approximately 11,4000 plugs of smooth cordgrass (*Spartina alterniflora*). The proposed tropical hammock planting will include approximately 500 native trees and shrubs.

The excavated material would be disposed in a submerged "anoxic hole" adjacent to the Lake Worth Municipal Golf Course. This will contribute to the associated Lake Worth Lagoon Wetland Restoration Project, primarily involving the filling of this previously dredged area, sponsored by Palm Beach County.

Alternative B:

> Same as Alternative A; however, excavated material will be deposited at a site other than the Lake Worth Municipal Golf Course site.

Alternative C:

No action.

THREATENED AND ENDANGERED SPECIES

We have reviewed the information provided as well as other information available to us on the presence of threatened and endangered species in the vicinity of the project sites. The Corps has determined each Alternative A, B and C, of the proposed project is not likely to adversely affect the West Indian manatee (*Trichechus manatus*). The project occurs within designated critical habitat for the manatee; however, based upon an agreement that the Corps will incorporate the Standard Manatee Protection Construction Conditions into the Department of the Army permit, the Service concurred with this determination as indicated in our draft FWCA report and in correspondence to the Corps' Regulatory Division, dated August 24, 2000.

This concurrence fulfills the requirements of Section 7 of the ESA, and no further action is required. If modifications are made to the project, if additional information involving potential effects to listed species becomes available, if a new species is listed, or if designated critical habitat may be adversely affected by the project, reinitiation of consultation maybe necessary.

It should be noted that Johnson's seagrass (*Halophila johnsonii*) is present at the Lake Worth Wetland Restoration Site and is likely to occur in the vicinity of John's Island. The National Marine Fisheries Service (NMFS) has provided comments regarding this federally threatened species in project areas. The Service supports the NMFS' recommendations with respect to avoiding impacts to this species.

FISH AND WILDLIFE RESOURCES

Habitat types associated with this environmental enhancement/creation include mangrove wetlands, emergent marsh, tidal channels, and upland tropical hardwood hammock. Associated fish and wildlife resources would in turn benefit. Due to an increase in desirable structure and feeding opportunities, bird utilization would be expected to increase with respect to individuals and species diversity. These include colonial nesters such as herons, ibis, and pelicans as well as other avifauna such as shorebirds, raptors, and neotropical migrants. Fisheries would benefit from both an expansion of desirable detrital sources and benthic shallows for invertebrate growth and food chain support, as well as expanded refugia. The enhancement of John's Island will benefit Lake Worth Lagoon area, where wetland resources and upland hammocks have declined dramatically in recent years.

The Service supports the environmental enhancement elements as indicated in the conceptual plan. We support restoration activities which would increase habitat diversity and maximize fish and wildlife utilization in a manner which would best serve the Lake Worth Lagoon ecosystem.

DISCUSSION

The preferred Alternative A includes the proposed placement of approximately 17,000 cubic yards of dredged fill material excavated during the John's Island Restoration Project into a 99 acre "anoxic hole" adjacent to the shoreline of the Lake Worth Municipal Golf Course. It is estimated the anoxic hole will require approximately 1 million cubic yards of material to complete this Palm Beach County sponsored project. Therefore, an additional 983,000 cubic yards will be needed to restore bottom elevations to -6 foot and shallower to provide more suitable habitat for seagrass and emergent wetland vegetation. This material is proposed to be obtained from other projects (i.e. IWW maintenance dredging, Peanut Island Restoration, and Palm Beach Harbor Expansion).

The hole was initially created through the process of dredging and filling intertidal and sub-tidal wetland habitat during construction of the Intracoastal Waterway. These activities have resulted in a shoreline with a steep littoral profile of 3.0 to -7.0 feet National Geodetic Vertical Datum (NGVD), which is not conducive for establishment of sub-tidal and intertidal habitat such as mangroves, seagrass, and oyster reef. In addition, open water dredge holes as deep as -23 feet NGVD exist and depths below -12 Ft. NGVD are common at the site. Three species of mangroves fringe approximately 3,850 feet of the existing 1.2 miles of shoreline; however, this habitat is degraded by invasion of the exotic Australian pine and Brazilian pepper. This armored shoreline is in disrepair, and in some areas total failure has occurred, which has resulted in accelerated erosion by boat wakes and wind generated waves.

Currently the plan also includes island creation (several) to support an additional 11 acres of red mangroves protected by two acres of 1-3 foot diameter limestone riprap designed to absorb wave action and provide substrate for approximately 0.7 acres of oyster reef. Additionally, the county proposes to remove approximately 5 acres of exotic vegetation and create approximately 3 acres of salt marsh habitat along the shoreline. According to Palm Beach County letter of response to the Corps, dated Oct 12, 1999, the project would increase substrate availability for seagrass colonization from 8.7 acres to 50 acres.

On August 24, 2000, the Service submitted a response to the Corps' Regulatory Division regarding the Lake Worth Lagoon Wetland Restoration Project. Palm Beach County requested a Department of the Army permit to fill 99.0 acres of tidal wetlands for the purpose of creating additional red mangrove (*Rhizophora mangle*) habitat and smooth cordgrass (*Spartina alternifora*) wetlands, provide substrate for oyster reef colonization, and to facilitate seagrass growth in 50 - 60 acres of submerged bottom impacted by historic dredging. This was to involve the sacrifice of 0.67 acres of existing seagrasses. In addition, the project would include the placement of fill in 0.4 acres of tidal waters to enlarge two golf tees. The Services' response at that time presented no objection to the project concept, but supported NMFS comments regarding the protection of existing aquatic resources.

RECOMMENDATIONS

The Service recommends the following items be included in construction plans for Johns Island Restoration, to be submitted for our review:

- pre-construction seagrass surveys to include bathymetry mapping and seagrass coverage, density, and species composition present around the island;
- in association with these surveys, provide barge routes, the location of any temporary piers for construction access, and strategies to avoid seagrass impacts in these areas;
- sediment/turbidity control measures in association with wetland creation and earthwork, as well as excavated material transport and deposition;
- proposed species composition of upland enhancement areas; and
- monitoring plans and assurances for long term maintenance of the site.

The Service recommends the following in regard to the proposed spoil disposal at the Lake Worth Golf Course site:

- avoid existing seagrasses in spoil deposition;
- identify locations and evaluate concentrations of fine silt/clay sediments in this "anoxic hole" to determine if removal may be needed prior to filling, in addressing potential impacts to adjacent seagrass beds (suspension and siltation), as well as long term stability of utilizing a fill "cap" on a soft base; and
- implement a turbidity monitoring plan to prevent siltation on adjacent seagrass beds during placement of fill material.

We also recommend, if feasible, phasing the restoration project as a whole to allow adaptive assessment of seagrass recruitment, wetland planting success, sediment quality, and water quality.

This report constitutes the Secretary of the Interior's views and recommendations for the Johns Island Environmental Restoration Project, in accordance with section 2(b) of the FWCA. Section 2(b) of the FWCA requires the Corps to "give full and equal consideration the report and recommendations of the Secretary of the Interior and any report of the State agency on the wildlife aspects of such projects." This report should be included in the Final Ecosystem Restoration Report And Environmental Assessment for the Johns Island Section 1135 Feasibility Study.

We are available to meet with project representatives to continue coordination in completion of this ecosystem restoration project. If you have any questions, please contact Trish Adams at (561) 562-3909, extension 232, regarding the findings and recommendations contained in this report.

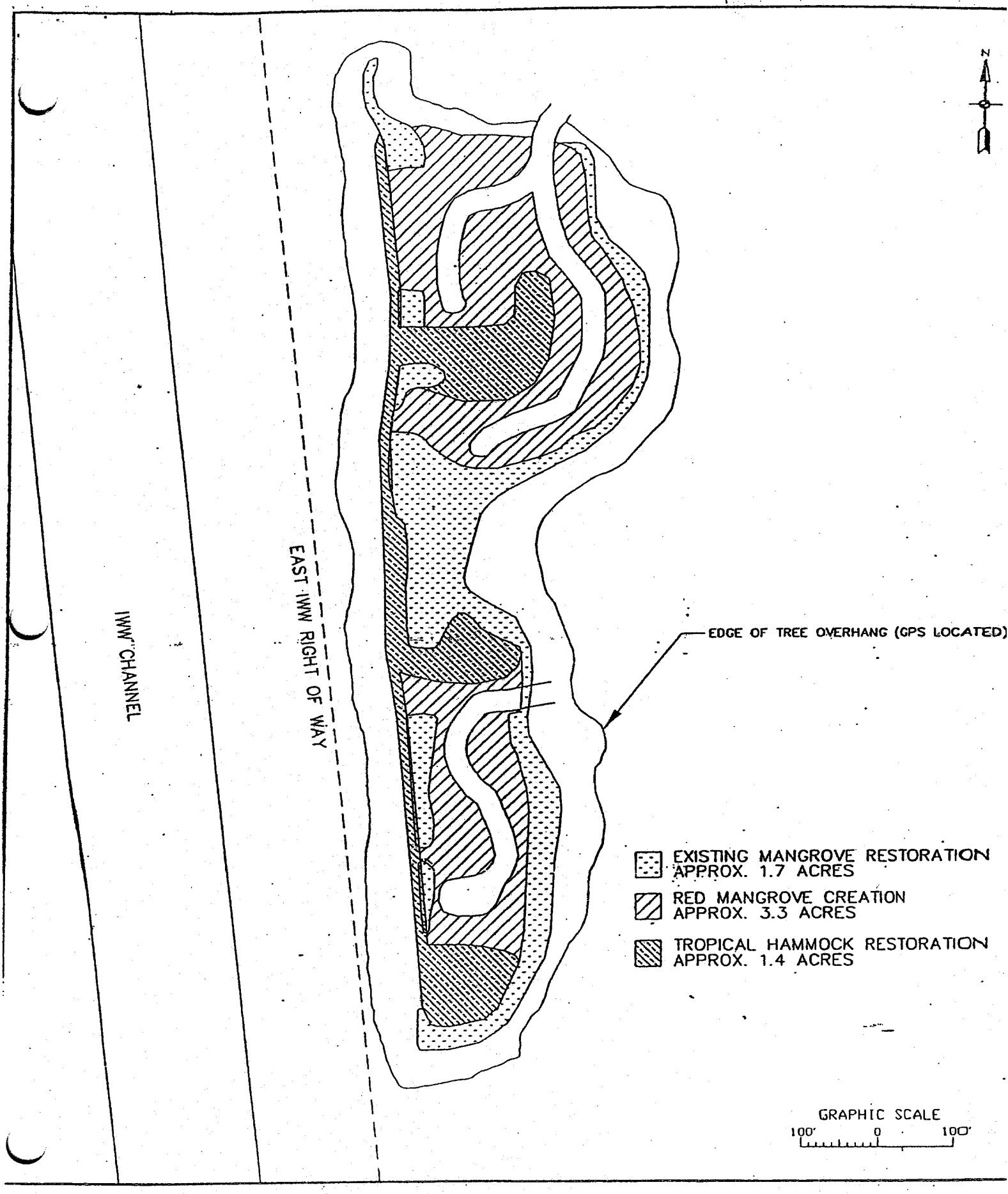
Sincerely yours,

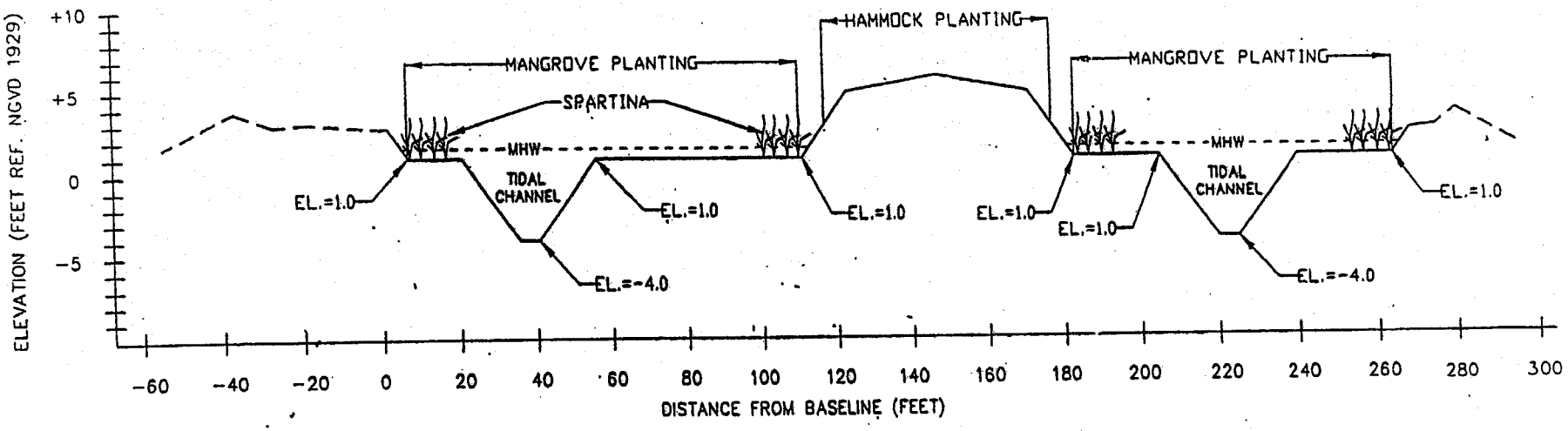
for

James J. Slack
Field Supervisor
South Florida Ecological Services Field Office

Attachments:
Johns Island restoration plan view
Johns Island restoration cross section
Lake Worth Lagoon Wetland Restoration plan view
Lake Worth Lagoon Wetland Restoration cross section

cc:
NMFS, Miami, FL
FWC, Vero Beach, FL
FDEP, Tallahassee, FL

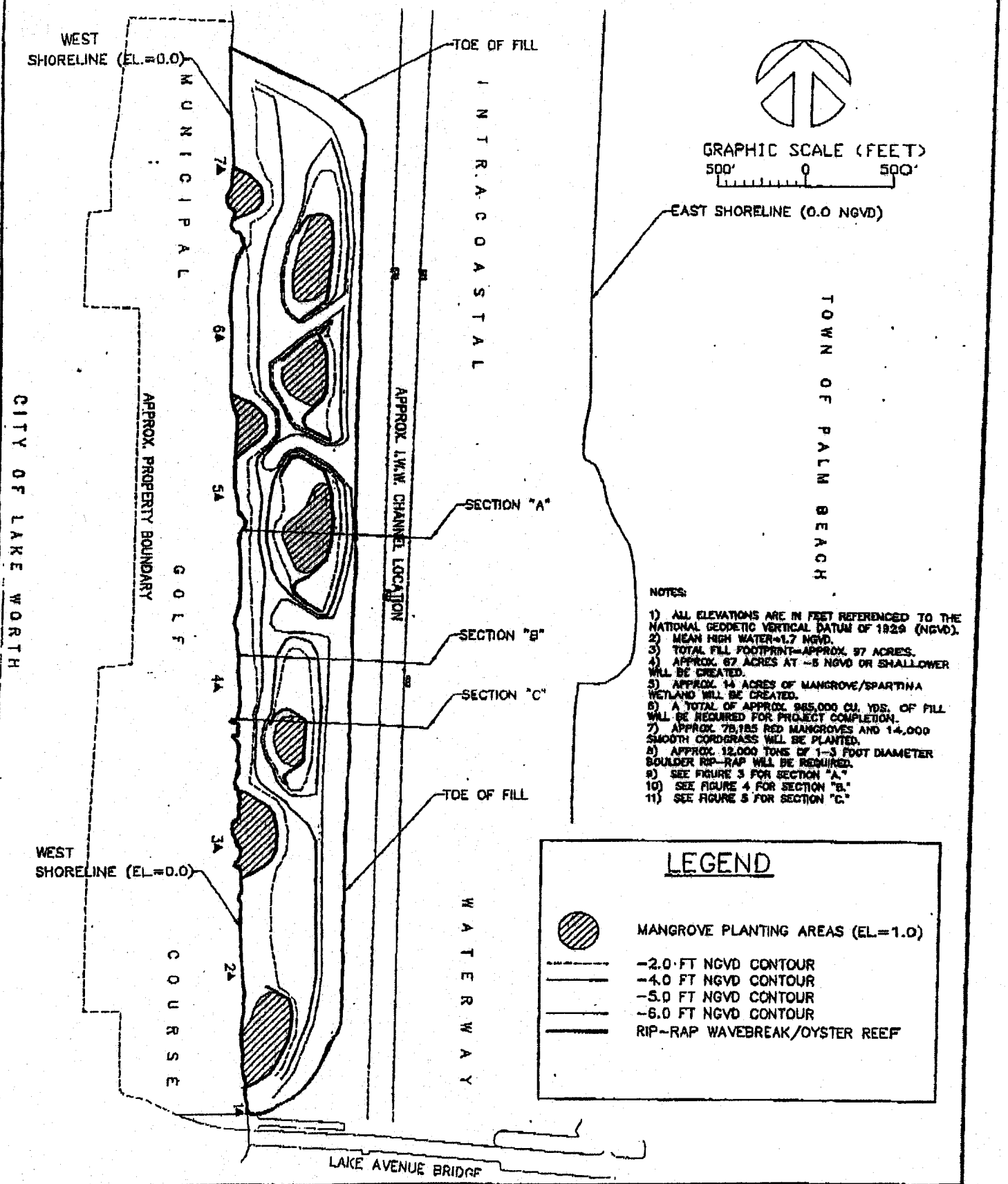

N
IWW CHANNEL
EAST IWW RIGHT OF WAY
EDGE OF TREE OVERHANG (GPS LOCATED)
EXISTING MANGROVE RESTORATION
APPROX. 1.7 ACRES
RED MANGROVE CREATION
APPROX. 3.3 ACRES
TROPICAL HAMMOCK RESTORATION
APPROX. 1.4 ACRES
GRAPHIC SCALE
100' 0 100'



NOTES:
1) ALL ELEVATIONS ARE IN FEET REFERENCED TO THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD).
2) ALL SLOPES TO GRADE=3H:1V.
3) SEE FIGURE FOR SECTION LOCATION.
4) MEAN HIGH WATER (MHW)=1.6 NGVD.
5) 13,800 RED MANGROVES WILL BE PLANTED 3 FEET ON CENTER.
6) 11,400 SMOOTH CORDGRASS WILL BE PLANTED TWO FEET ON CENTER ALONG THE WETLAND PERIMETER AND ALONG TIDAL CHANNELS.
7) 480 TROPICAL HAMMOCK PLANTS WILL BE PLANTED 7 FEET ON CENTER.

Preferred Disposal Alternative Site Plan

FIGURE 6



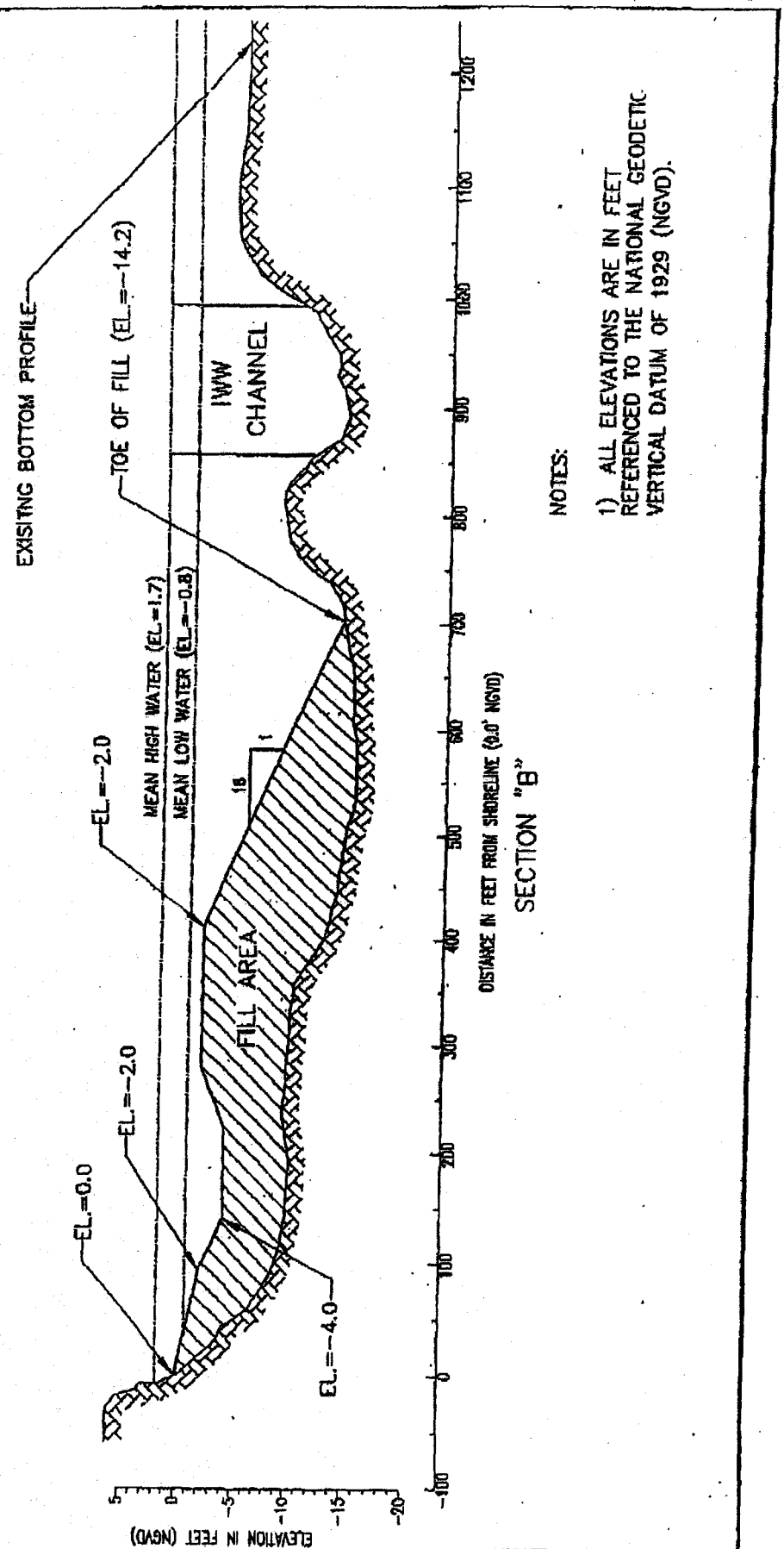
DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

PALM BEACH COUNTY DEPARTMENT OF ENVIRONMENTAL RESOURCES MANAGEMENT

JOHNS ISLAND SECTION 1135
ENVIRONMENTAL RESTORATION
PALM BEACH COUNTY, FLORIDA

Preferred Disposal Alternative Cross-Section

FIGURE 7



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